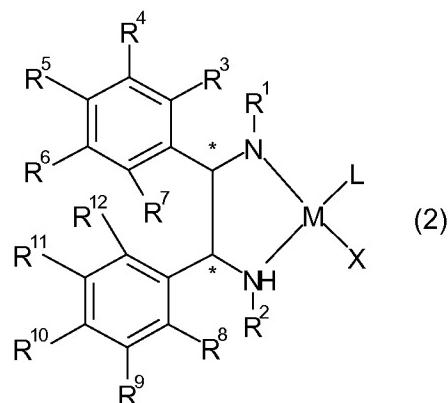


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AMENDMENTS TO THE CLAIMS

1. (Cancelled).
2. (Currently amended) An optically active transition metal-diamine complex represented by the formula (2):

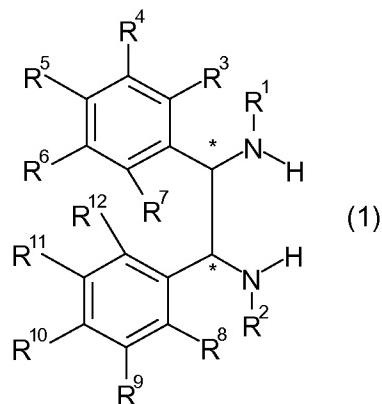


wherein R¹ and R² each independently represent a hydrogen atom, an optionally substituted hydrocarbon group, or -SO₂R¹³ (wherein R¹³ represents an optionally substituted hydrocarbon group, a camphoryl group, or a substituted amino group), R³ to R¹² each independently represent a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, an optionally substituted alkoxy group, an optionally substituted aryloxy group, an optionally substituted aralkyloxy group, or a substituted amino group, M represents a transition metal selected from the group consisting of ruthenium, rhodium and iridium, X represents a halogen atom, L represents a ligand, and * represents an asymmetric carbon atom, provided that at least one of R³ to R⁷ and R⁸ to R¹² is a substituted amino group.

3. (Currently amended) An optically active transition metal-diamine complex obtained by reacting an optically active diamine compound represented by the formula (1):

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wherein R¹ and R² each independently represent a hydrogen atom, an optionally substituted hydrocarbon group, or -SO₂R¹³ (wherein R¹³ represents an optionally substituted hydrocarbon group, a camphoryl group, or a substituted amino group), R³ to R¹² each independently represent a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, an optionally substituted alkoxy group, an optionally substituted aryloxy group, an optionally substituted aralkyloxy group, or a substituted amino group, and * represents an asymmetric carbon atom, provided that at least one of R³ to R⁷ and R⁸ to R¹² is a substituted amino group;

and a transition metal compound represented by the formula (3):



wherein M represents a transition metal selected from the group consisting of ruthenium, rhodium and iridium, X represents a halogen atom, L represents a ligand, m represents 2 or 3, n represents 0 or 1, and p represents 1 or 2.

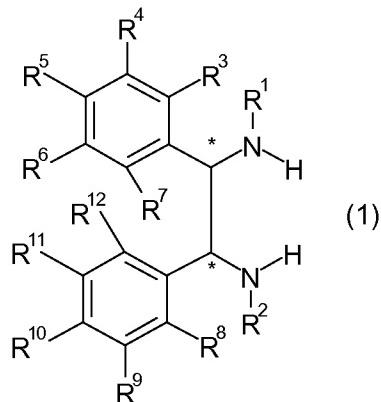
4. (original) A catalyst for asymmetric synthesis comprising the optically active transition metal-diamine complex according to claim 2 or 3.

5. (original) The catalyst for asymmetric synthesis according to claim 4, wherein the catalyst for asymmetric synthesis is a catalyst for asymmetric reduction.

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6. (original) A catalyst for asymmetric synthesis comprising an optically active diamine compound represented by the formula (1):



wherein R¹ and R² each independently represent a hydrogen atom, an optionally substituted hydrocarbon group, or -SO₂R¹³ (wherein R¹³ represents an optionally substituted hydrocarbon group, a camphoryl group, or a substituted amino group), R³ to R¹² each independently represent a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, an optionally substituted alkoxy group, an optionally substituted aryloxy group, an optionally substituted aralkyloxy group, or a substituted amino group, and * represents an asymmetric carbon atom, provided that at least one of R³ to R⁷ and R⁸ to R¹² is a substituted amino group; and a transition metal compound represented by the formula (3):



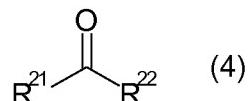
wherein M represents a transition metal, X represents a halogen atom, L represents a ligand, m represents 2 or 3, n represents 0 or 1, and p represents 1 or 2.

7. (original) The catalyst for asymmetric synthesis according to claim 6, wherein the catalyst for asymmetric synthesis is a catalyst for asymmetric reduction.

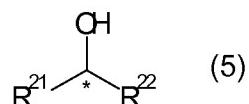
8. (Withdrawn) A process for producing an alcohol, which comprises subjecting a ketone to an asymmetric reduction in an aqueous solvent in the presence of the catalyst for asymmetric reduction of claim 5 or 7.

9. (Withdrawn) The process according to claim 8, wherein the ketone is a prochiral ketone, and the produced alcohol is an optically active alcohol.

10. (Withdrawn) The process according to claim 9, wherein the ketone is a ketone represented by the following formula (4):



wherein R²¹ and R²² each independently represent an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, or a ferrocenyl group, provided that R²¹ ≠ R²², and R²¹ and R²² may be bonded to each other to form a cyclic ketone having a substituent, and the resultant optically active alcohol is an optically active alcohol represented by the following formula (5):



wherein * represents an asymmetric carbon atom and R²¹ and R²² are the same as described above.

11. (Withdrawn) The process according to claim 8, wherein the asymmetric reduction is based on asymmetric transfer hydrogenation.

12. (Withdrawn) The process according to claim 8, wherein the catalyst for asymmetric reduction is recovered after use.

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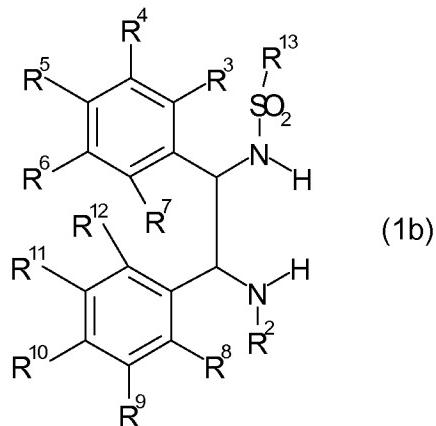
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13. (Withdrawn) The process according to claim 12, wherein the recovery is performed in the form of an aqueous solution.

14. (Withdrawn) The process according to claim 8, wherein the recovered catalyst for asymmetric reduction is recycled.

15. (Withdrawn) The process according to claim 14, wherein the recovered catalyst for asymmetric reduction is a catalyst to be recycled in the form of the recovered aqueous solution.

16. (original) A diamine compound represented by the formula (1b):



wherein R² represents a hydrogen atom, an optionally substituted hydrocarbon group, or -SO₂R¹³ (wherein R¹³ represents an optionally substituted hydrocarbon group, a camphoryl group, or a substituted amino group), R³ to R¹² each independently represent a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, an optionally substituted alkoxy group, an optionally substituted aryloxy group, an optionally substituted aralkyloxy group, or a substituted amino group, and R¹³ represents an optionally substituted hydrocarbon group, a camphoryl group, or a substituted amino group, provided that at least one of R³ to R⁷ and R⁸ to R¹² is a substituted amino group.

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17. (New) The optically active transition metal-diamine complex according to claim 3, wherein the transition metal compound represented by the formula (3) is selected from the group consisting of $[\text{RuCl}_2(\text{benzene})]_2$, $[\text{RuBr}_2(\text{benzene})]_2$, $[\text{Rul}_2(\text{benzene})]_2$, $[\text{RuCl}_2(\text{p-cymene})]_2$, $\text{RuBr}_2(\text{p-cymene})]_2$, $[\text{Rul}_2(\text{p-cymene})]_2$, $[\text{RuCl}_2(\text{hexamethylbenzene})]_2$, $[\text{RuBr}_2(\text{hexamethylbenzene})]_2$, $[\text{Rul}_2(\text{hexamethylbenzene})]_2$, $[\text{RuCl}_2(\text{mesitylene})]_2$, $[\text{RuBr}_2(\text{mesitylene})]_2$, $[\text{Rul}_2(\text{mesitylene})]_2$, $[\text{RuCl}_2(\text{pentamethylcyclopentadiene})]_2$, $[\text{RuBr}_2(\text{pentamethylcyclopentadiene})]_2$, $[\text{Rul}_2(\text{pentamethylcyclopentadiene})]_2$, $[\text{RuCl}_2(\text{cod})]_n$, $[\text{RuBr}_2(\text{cod})]_n$, $[\text{Rul}_2(\text{cod})]_n$, $[\text{RuCl}_2(\text{nbd})]_n$, $[\text{RuBr}_2(\text{nbd})]_n$, $[\text{Rul}_2(\text{nbd})]_n$, RuCl_3 hydrate, RuBr_3 hydrate, Rul_3 hydrate, $[\text{RhCl}_2(\text{cyclopentadiene})]_2$, $[\text{RhBr}_2(\text{cyclopentadiene})]_2$, $[\text{Rhl}_2(\text{cyclopentadiene})]_2$, $[\text{RhCl}_2(\text{pentamethylcyclopentadiene})]_2$, $[\text{RhBr}_2(\text{pentamethylcyclopentadiene})]_2$, $[\text{Rhl}_2(\text{pentamethylcyclopentadiene})]_2$, $[\text{RhCl}(\text{cod})]_2$, $[\text{RhBr}(\text{cod})]_2$, $[\text{Rhl}(\text{cod})]_2$, $[\text{RhCl}(\text{nbd})]_2$, $[\text{RhBr}(\text{nbd})]_2$, $[\text{Rhl}(\text{nbd})]_2$, RhCl_3 hydrate, RhBr_3 hydrate, Rhl_3 hydrate, $[\text{IrCl}_2(\text{cyclopentadiene})]_2$, $[\text{IrBr}_2(\text{cyclopentadiene})]_2$, $[\text{Irl}_2(\text{cyclopentadiene})]_2$, $[\text{IrCl}_2(\text{pentamethylcyclopentadiene})]_2$, $[\text{IrBr}_2(\text{pentamethylcyclopentadiene})]_2$, $[\text{Irl}_2(\text{pentamethylcyclopentadiene})]_2$, $[\text{IrCl}(\text{cod})]_2$, $[\text{IrBr}(\text{cod})]_2$, $[\text{Irl}(\text{cod})]_2$, $[\text{IrCl}(\text{nbd})]_2$, $[\text{IrBr}(\text{nbd})]_2$, $[\text{Irl}(\text{nbd})]_2$, IrCl_3 hydrate, IrBr_3 hydrate and Irl_3 hydrate.

18. (New) The catalyst for asymmetric synthesis according to claim 6, wherein the transition metal compound represented by the formula (3) is selected from the group consisting of $[\text{RuCl}_2(\text{benzene})]_2$, $[\text{RuBr}_2(\text{benzene})]_2$, $[\text{Rul}_2(\text{benzene})]_2$, $[\text{RuCl}_2(\text{p-cymene})]_2$, $[\text{RuBr}_2(\text{p-cymene})]_2$, $[\text{Rul}_2(\text{p-cymene})]_2$, $[\text{RuCl}_2(\text{hexamethylbenzene})]_2$, $[\text{RuBr}_2(\text{hexamethylbenzene})]_2$, $[\text{Rul}_2(\text{hexamethylbenzene})]_2$, $[\text{RuCl}_2(\text{mesitylene})]_2$, $[\text{RuBr}_2(\text{mesitylene})]_2$, $[\text{Rul}_2(\text{mesitylene})]_2$, $[\text{RuCl}_2(\text{pentamethylcyclopentadiene})]_2$, $[\text{Rul}_2(\text{pentamethylcyclopentadiene})]_2$, $[\text{RuCl}_2(\text{cod})]_n$, $[\text{RuBr}_2(\text{cod})]_n$, $[\text{Rul}_2(\text{cod})]_n$,

[RuCl₂(nbd)]_n, [RuBr₂(nbd)]_n, [Rul₂(nbd)]_n, RuCl₃ hydrate, RuBr₃ hydrate, Rul₃ hydrate,
[RhCl₂(cyclopentadiene)]₂, [RhBr₂(cyclopentadiene)]₂, [RhI₂(cyclopentadiene)]₂,
[RhCl₂(pentamethylcyclopentadiene)]₂, [RhBr₂(pentamethylcyclopentadiene)]₂,
[RhI₂(pentamethylcyclopentadiene)]₂, [RhCl(cod)]₂, [RhBr(cod)]₂, [RhI(cod)]₂,
[RhCl(nbd)]₂, [RhBr(nbd)]₂, [Rhl(nbd)]₂, RhCl₃ hydrate, RhBr₃ hydrate, Rhl₃ hydrate,
[IrCl₂(cyclopentadiene)]₂, [IrBr₂(cyclopentadiene)]₂, [IrI₂(cyclopentadiene)]₂,
[IrCl₂(pentamethylcyclopentadiene)]₂, [IrBr₂(pentamethylcyclopentadiene)]₂,
[IrI₂(pentamethylcyclopentadiene)]₂, [IrCl(cod)]₂, [IrBr(cod)]₂, [IrI(cod)]₂, [IrCl(nbd)]₂,
[IrBr(nbd)]₂, [IrI(nbd)]₂, IrCl₃ hydrate, IrBr₃ hydrate and IrI₃ hydrate.